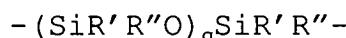


polysiloxane groups by silicon-carbon bonds, and wherein there are at least three blocks in said elastomer composition.

24. (New) The membrane or matrix of claim 23, wherein the poly(alkylene oxide) groups are present in said elastomer composition as blocks.

25. (New) The membrane or matrix of claim 23, wherein said poly(alkylene oxide) groups are poly(ethylene oxide) groups.

*B2*  
26. (New) The membrane or matrix of claim 23, wherein the formula of the polysiloxane groups is



where R' and R'' are selected from the group consisting of

a) free groups which are the same or different and which are a lower alkyl group or a phenyl group in which case said alkyl or phenyl group may be substituted or unsubstituted, or alkoxy-terminated poly(alkylene oxide) groups having the formula  $-\text{R}^3\text{O}-(\text{CHRCH}_2\text{O})_m\text{alk}$ , where alk is a lower alkyl group, R is hydrogen or lower alkyl,  $\text{R}^3$  is a linear or branched  $\text{C}_2\text{-C}_6$  alkylene and m is 1 to 30,

b) bonds formed from the hydrogen or alkenyl groups to other polymer chains in the elastomer, and as alkoxy-terminated grafts of

polysiloxane groups or as blocks or as a mixture of said grafts and said blocks, the said grafts or blocks being linked to the polysiloxane groups by silicon-carbon bonds,

c) optionally unreacted groups selected from the group consisting of hydrogen, vinyl and vinyl-terminated alkene, and  
q is 1 to 3000.

27. (New) The membrane or matrix of claim 26, wherein free R' and R" groups are lower alkyl groups.

*B2*  
28. (New) The membrane or matrix of claim 24, wherein said poly(alkylene oxide) groups have the following formula:

- R<sup>3</sup>-O(CHRCH<sub>2</sub>O)<sub>m</sub>R<sup>4</sup> - or - CH<sub>2</sub>CHR<sub>1</sub>COO(CHRCH<sub>2</sub>O)<sub>m</sub>COCHR<sub>1</sub>CH<sub>2</sub> -

where R is hydrogen, a lower alkyl or phenyl, R<sub>1</sub> is hydrogen or a lower alkyl, R<sup>3</sup> and R<sup>4</sup> are the same or different and are straight chain or branched C<sub>2</sub>-C<sub>6</sub> alkylene groups, and m is 1 to 30.

29. (New) The membrane of claim 23, wherein the elastomer composition is made up of two elastomers interlaced one inside the other, wherein the first elastomer comprises poly(alkylene oxide) groups and the poly(alkylene oxide) groups are present in the elastomer or polymer as blocks, or as blocks and alkoxy-terminated grafts of polysiloxane groups, the said blocks or blocks and grafts

being linked to the polysiloxane groups by silicon-carbon bonds, and wherein the second elastomer comprises a siloxane elastomer.

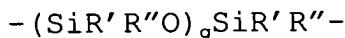
30. (New) The membrane or matrix of claim 29, wherein the second elastomer is a poly(dimethyl siloxane) elastomer which optionally includes poly(alkylene oxide) groups.

*B2*  
31. (New) The membrane or matrix of claim 30, wherein the optional poly(alkylene oxide) groups of said second elastomer are present in the form of blocks, or as blocks and alkoxy-terminated grafts of polysiloxane groups, said blocks or blocks and grafts being linked to the polysiloxane groups by silicon-carbon bonds.

32. (New) The membrane or matrix of claim 23, wherein the elastomer composition is a blend which comprises a siloxane elastomer and a straight chain polysiloxane copolymer which comprises poly(alkylene oxide) groups, wherein the poly(alkylene oxide) groups are present in said polymer as blocks, or as blocks and alkoxy-terminated grafts of polysiloxane groups, said blocks or blocks and grafts being linked to the polysiloxane groups by silicon-carbon bonds.

33. (New) The membrane or matrix of claim 32, wherein the poly(alkylene oxide) groups are poly(ethylene oxide) groups.

34. (New) The membrane or matrix of claim 10, wherein the formula of the polysiloxane groups is



where R' and R'' are

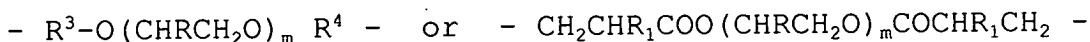
a) partly free groups, which are the same or different and which are a lower alkyl group or a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted, or alkoxy terminated poly(alkylene oxide) groups having the formula



*B2*  
where alk is a lower alkyl group, R is hydrogen or lower alkyl, R<sup>3</sup> is a linear or branched C<sub>2</sub>-C<sub>6</sub> alkylene group and m is 1 to 30, and q is 1 to 3000.

35. (New) The membrane or matrix of claim 34, wherein the free R' and R'' groups are lower alkyl groups.

36. (New) The membrane or matrix of claim 32, wherein the poly(alkylene oxide) groups are present in the straight-chain polysiloxane polymer in the form of poly(alkylene oxide) blocks having the formula



being linked to the polysiloxane groups by silicon-carbon bonds, there being at least three blocks in said elastomer composition, said method comprising

- a) crosslinking a vinyl-functional polymer component and a hydride functional component in the presence of a catalyst and in the absence of monomer, or
- b) crosslinking a polymer component in the presence of a peroxide catalyst and in the absence of monomer.

41. (New) The method of claim 40, wherein the amounts of the vinyl-functional component and the hydride-functional component are selected so that the ratio of the molar amount of hydrides to the molar amount of the double bonds is at least 1.

42. (New) The method of claim 40, wherein

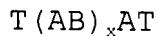
I) the vinyl-functional polymer component is

a) a vinyl-functional polysiloxane having the formula



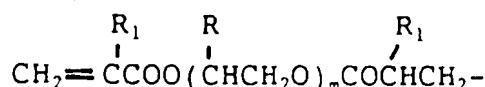
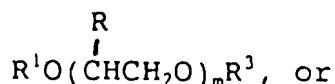
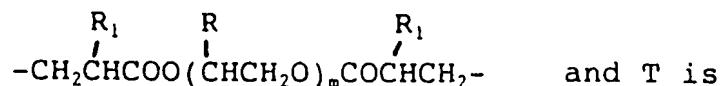
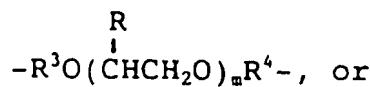
where R' and R'' are the same or different and are a lower alkyl group or a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted, and where some of the substituents R' and/or R'' have been substituted by vinyl groups, and r is 1 to 27000, or

b) an alkenyl terminated polysiloxane block copolymer having the formula



where A is  $-(SiR'R''O)_qSiR'R''-$ , where R' and R'' are the same or different and are a lower alkyl group or a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted;

B is a poly(alkylene oxide) having the formula



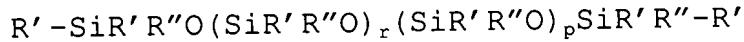
where R is hydrogen, a lower alkyl or phenyl,

R<sub>1</sub> is hydrogen or a lower alkyl,

R<sup>3</sup> and R<sup>4</sup> are the same or different and are straight-chain or branched C<sub>2</sub> - C<sub>6</sub> alkylene groups,

R<sup>1</sup> is a straight-chain or branched C<sub>2</sub> - C<sub>6</sub> alkenyl group,

m is 1 to 30, q is 1 to 3000, and x is 1 to 100, or  
c) a vinyl-functional polysiloxane copolymer having the formula



where, in the first block, R' and R'' are the same or different and are a lower alkyl group, or a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted, and where some of the substituents R' and/or R'' have been substituted for by vinyl groups, and r is 1 to 27000, and where, in the second block, R' is a lower alkyl group, or an alkoxy-terminated poly(alkylene oxide) group having the formula



where alk is a lower alkyl group, R<sup>3</sup> is a straight or branched C<sub>2</sub> - C<sub>6</sub> alkylene group, R is hydrogen or a lower alkyl group, and m is 1 to 30, or R' is a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted, and R'' is a lower alkyl group or a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted, and p is 1 to 5000, or  
d)  $\alpha, \omega$ -dialkenyl poly(alkylene oxide) having the formula



where R is hydrogen or a lower alkyl, R<sup>1</sup> and R<sup>2</sup> are the same or different straight-chain or branched C<sub>2</sub> - C<sub>6</sub> alkenyl groups, and m is 1 to 30, or

e) a blend of a least two of the above-mentioned components a) - d) and in that

II) the hydride-functional component is

a) a hydride-functional siloxane which may be straight chain, star shaped, branched or cyclic, or

b) a hydride-terminated siloxane block copolymer having the formula  $T(BA)_x BT$ , where

*B2*  
T is  $H-SiR'R''O(SiR'R''O)_q SiR'R''-$ ,

A is  $-SiR'R''O(SiR'R''O)_q SiR'R''-$ , where R' and R'' are the same or different and are a lower alkyl group or a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted;

B is a poly(alkylene oxide) having the formula

$-R^3-O-(CHRCH_2O)_m-R^4-$ , or  $-CH_2CHR_1COO(CHRCH_2O)_mCOCHR_1CH_2-$

where R is hydrogen, a lower alkyl or phenyl, R<sub>1</sub> is hydrogen or a lower alkyl, R<sup>3</sup> and R<sup>4</sup> are the same or different and are straight-chain or branched C<sub>2</sub> - C<sub>6</sub> alkylene groups, m is 1 to 30, q is 1 to 3000, and x is 0 to 100, or

c) a blend of the above-mentioned components a) and b), provided that when the vinyl functional polymer component is a) a vinyl-functional polysiloxane or c) a vinyl-functional polysiloxane copolymer or a blend of a) and c) according to the above formulas,

the hydride-functional component is b) a hydride-terminated siloxane block copolymer according to the above formula.

43. (New) The method of claim 42, wherein the hydride-functional siloxane copolymer is straight-chain, and that its formula is



*b2*  
where R'' and R'' are the same or different and are a lower alkyl group or a phenyl group, in which case said alkyl or phenyl group may be substituted or unsubstituted, and where some of the substituents R' and/or R'' have been substituted for by hydrogen, and r is 1 to 27000.

44. (New) The method of claim 40, wherein the vinyl-functional polymer component contains a filler.